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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/911,279	07/23/2001	Caroline M. Ylitalo	56473US002	4080

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EXAMINER

BERMAN, SUSAN W

ART UNIT PAPER NUMBER

1711

DATE MAILED: 10/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/911,279

Applicant(s)

YLITALO ET AL.

Examiner

Susan W. Berman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09-30-2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5,11,14,16,17 and 20-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,11,14,16,17 and 20-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5, 11, 14, 16, 17 and 20-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caiger et al (6,114,406) in view of WO 01/308073. Caiger et al disclose radiation curable ink jet ink compositions comprising UV radiation curable acrylate monomers and oligomers, a photoinitiator, a colorant and a fluorosurfactant. See column 2, lines 15-20, and column 3, lines 19-21 and 41-43. Caiger et al teach that suitable surfactants are preferably non-ionic, such as the exemplified C₈ fluorinated surfactant Fluorad FC430, and use a fluoro surfactant in each of the examples (column 3, lines 52-55). The compositions are preferably organic solvent-free and non-aqueous (see the examples). Caiger et al do not specifically teach the use of a C₄F₉-group containing species of fluorochemical surfactants.

WO 01/30873 discloses C₄F₉-group containing fluorochemical surfactants derived from nonafluorobutanesulfonyl fluoride corresponding to the structures of the instantly claimed surfactants. See Formulas I, II and III on pages 3-6. WO'873 teaches that the disclosed surfactants "lower the surface tension of water and other liquids in the same or similar low values achieved by premier surfactants such as those derived from perfluorooctane sulfonyl fluoride" (Abstract and page 14, lines 1-20). WO '873 further teaches that the disclosed surfactants can be produced at lower cost, are potent, and are expected to break down into degradation products when exposed to biological, thermal,

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oxidative, hydrolytic and photolytic conditions found in the environment (page 2, lines 13-25, page 3, lines 4-12 and page 14, lines 4-6). WO '873 further teach using the disclosed surfactants as leveling agents in inks (page 25, lines 17-19).

It would have been obvious to one skilled in the art to employ the C_4F_9 -group containing fluorochemical surfactants taught by WO '873 as the fluoro surfactant in the ink compositions disclosed by Caiger et al for the following reasons. Caiger et al provide motivation to employ fluorinated surfactants, such as a C_8 (perfluorooctane) fluorinated surfactant, in ink jet ink compositions by disclosing fluorinated surfactants for use in ink jet ink compositions (see column 3, lines 52-55). Caiger et al teach that the surfactant is preferably a nonionic surfactant and a fluoro surfactant, thus providing motivation to employ nonionic fluorosurfactants, as disclosed by WO '873, in the disclosed ink compositions. Caiger et al do not specifically mention a C_4F_9 -group containing species of fluorochemical surfactants. However, Caiger et al do not limit the surfactants taught to those specifically used in the examples. WO '873 provides motivation to employ the disclosed C_4F_9 -group containing fluorochemical surfactants by teaching that the disclosed surfactants "lower the surface tension of water and other liquids in the same or similar low values achieved by premier surfactants such as those derived from perfluorooctane sulfonyl fluoride" and function as leveling agents in ink compositions. The perfluorinated sulfonamido oxyalkylene surfactants taught by Caiger et al and the surfactant of formula III containing perfluorinated, sulfonamido and oxyalkylene moieties disclosed by WO '873 are considered to be analogous surfactants in terms of chemical structure and surfactant properties known in the art. WO '873 teaches that the disclosed polymeric C_4F_9 -group containing fluorochemical polyoxyalkylene surfactants of formula I or formula II are equivalent to the surfactants of formula I and/or can used in admixture with the

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surfactant of formula I, thus WO '873 is considered to teach that any of the disclosed fluorinated surfactants containing a C₆ to C₂₂ perfluoralkyl group, sulfonamido groups and polyether groups would be useful surfactants in the ink compositions disclosed by Caiger et al. WO '873 specifically teach that surfactants derived from perfluorobutanesulfonyl fluoride have surface activities that surprisingly rival the surface activities of homologs made from perfluorooctane segments, such as perfluorooctanesulfonyl fluoride, which correspond to the surfactants taught by Caiger et al (see page 2, lines 13-16). Thus, one of ordinary skill in the art at the time of the invention would have been motivated to substitute that surfactants containing perfluorobutanesulfonyl groups for surfactants containing perfluorooctanesulfonyl groups by a reasonable expectation of successfully providing an ink jet ink and also by an expectation of providing the advantageous surface activities taught by WO '873. WO '873 teaches reduction of surface tension in solutions and suggests foam stability as well.

With respect to claim 21, WO '873 teaches foam stability for compositions comprising the disclosed surfactants, thus suggesting that foam stability would be an expected property of compositions containing the disclosed surfactants.

With respect to claims 23-25, It would have been obvious to one skilled in the art at the time of the invention to expose the disclosed ink jet ink compositions to actinic radiation, such as UV radiation, in order to polymerize the ink because Caiger et al teach radiation curable compositions containing a photoinitiator. Caiger et al teach ink jet printing such as label printing (column 1, lines 5-9 and lines 25-32, and claim 14).

Claims 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caiger et al in view of WO 01/30873, as applied to claims 1, 23, 26 and 30 above, and

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further in view of Adkins et al (6,113,679). Caiger et al disclose ink jet inks for printing on a substrate. Adkins et al disclose inkjet inks comprising analogous components, such as a binder and a fluorochemical surfactant, and teach that the receiving substrate can be polymeric films, such as acrylic-containing films, and that the films can be retroreflective (column 5, line 60, to column 6, line 32).

It would have been obvious to one skilled in the art at the time of the invention to apply the ink jet ink compositions taught by Caiger et al in combination with WO '873 to a polymethylmethacrylate film that is retroreflective, as taught by Adkins. The reason is that the ink jet ink compositions are very similar in composition and would be expected to be successfully applied to a film such as polymethylmethacrylate that is retroreflective because Adkins et al teach such an application for the disclosed ink jet inks. The teaching of Adkins et al is relied upon for teaching that it is known to employ ink jet inks for printing on a retroreflective substrate. This teaching is considered to be set forth in analogous art because the disclosures of Caiger et al and Adkins et al are concerned with ink jet inks employing fluorochemical surfactants. Thus one of ordinary skill in the art would have been expected to have known about the application of ink jet inks to retroreflective substrates, as shown by the disclosure of Adkins et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W. Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Susan W Berman

Primary Examiner
Art Unit 1711

SB
10/17/05